



STS-84 Mission Includes Astronaut Exchange on Mir; Three Marshall Protein Crystal Growth Experiments

The continuing cooperative effort in space exploration between the United States and Russia will be the focus of NASA's fourth Shuttle mission of 1997 with the launch of Space Shuttle Atlantis on Mission STS-84.

Scheduled to launch tomorrow from the Kennedy Space Center at 3:07 a.m. CDT, it will be the sixth of nine planned missions to the Russia's space station Mir, and the third one involving an exchange of U.S. astronauts. Astronaut Jerry Linenger, who has been on Mir since mid-January, will be replaced by astronaut Mike Foale. Foale will spend more than four months on the orbiting Russian facility. He will return to Earth on Space Shuttle Mission STS-86, scheduled for launch in late September.

The STS-84 mission will include Marshall Protein Crystal Growth (PCG) experiments to be conducted in three facilities - the Diffusion-Controlled Crystallization Apparatus for Microgravity (DCAM) facility the Gaseous Nitrogen Dewar (GND) facility, and the Second-Generation Vapor Diffusion Apparatus (VDA-2) facility.

The DCAM is designed to grow protein crystals at slow, controlled rates in the microgravity environment of space. The crew of Space Shuttle Atlantis will retrieve protein samples which have been growing in the DCAM on the Russian Mir space station since January 1997, and replace them with new samples. Protein crystals are used in basic biological

research, pharmacology and drug development. Earth's gravity affects the purity and structural integrity of crystals. The low-gravity environment in space allows for the growth of larger, purer crystals of greater structural integrity. Analyses of some protein crystals grown in space have revealed more about a protein's molecular structure than crystals grown on Earth. DCAM — a little larger than a 35 mm film can — has produced promising crystals in a long stay abroad the Mir space station.

Dr. Daniel Carter, New Century Pharmaceuticals Inc., Huntsville, is the principal investigator.

Dr. Alexander McPherson, University

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Center Director Littles Honored With Presidential Rank Award



Dr. Wayne Littles

Center Director Wayne Littles was among the 63 members of the federal government's Senior Executive Service (SES) honored by President Bill Clinton recently with a Presidential Rank Award for Distinguished Service. The annual award recognizes government's top executives for their valuable contributions in leading vital federal programs. The President welcomed the recipients in the Oval Office where he recognized them as

national role models. "Be proud of your record of achievement, for your contributions are laying the groundwork of our nation's continual success," said President Clinton in a statement about the award winners. "Indeed, future generations of government leaders will be inspired by your accomplishments."

As of Dec. 31, 1996, there were 6,230 career members of the SES. Recipients of the Presidential Rank Award for Distinguished Service receive a \$20,000 award, while Meritorious Service recipients receive \$10,000.



Wearing their launch and entry spacesuits, members of the STS-84 crew are all smiles as they pose for a group photograph with the Space Shuttle Atlantis in the background. Kneeling from left are Mission Specialists Carlos Noriega and Jean-Francois Clervoy. Standing from left are Mission Specialist Elena Kondakova, Pilot Eileen Marie Collins, Mission Specialists Michael Foale and Edward Tsang Lu, and Commander Charles Precourt.

Hubble's Upgrades Show Birth and Death of Stars; Large Black Hole

Three months after an orbital house call by astronauts, new instruments aboard NASA's Hubble Space Telescope are helping astronomers probe the universe in greater detail than ever before.

New data released by NASA include direct evidence of a supermassive black hole and remarkable new details on the explosive life cycle of stars. NASA also reported that all new Hubble instruments and upgrades are generally performing well.

"We're extremely excited about the quality and precision of the images from Hubble," said Wes Huntress, NASA Associate Administrator for Space Science. "Following check-out of the instruments, Hubble will return to full science operations, and we can expect a continuing flow of new and exciting discoveries."

These initial results clearly demonstrate the ability of the new instruments to fulfill their science goals with the Hubble Telescope, say project astronomers. Project officials are pleased to report that other instruments and electronics installed during the second servicing mission are generally performing well.

Alumni League to Hold Luncheon

The Marshall Chapter NASA Alumni League will have a "Spring-Get-Together" with a luncheon on May 22 at the University of Alabama in Huntsville Beville Center. A social will begin at 11:30 a.m. followed by lunch at 12:30 p.m. Cost is \$14 per person. Reservations should be made by May 17 to John McCarty at 830-5241 or Ulla Doane at 881-5653. Checks should be mailed to McCarty at 1300 Douglass Road, Huntsville, Ala. 35806.

Lechner Named Outstanding Part-time Faculty Member



Larry Lechner

Larry Lechner of Marshall's Technology Outreach Office was recently recognized by Calhoun Community College as the Outstanding Faculty Member of the Year for 1996. Designed to recognize and reward excellence in class, the award honors one part-time instructor who has demonstrated outstanding performance in the areas of course design, subject mastery, delivery of instruction, innovation and availability to students.

Lechner has taught mathematics for Calhoun since 1982 and he also serves as representative of the part-time faculty on the Research Park/Redstone Arsenal Calhoun Campus Advisory Team and as a member of the Calhoun College cabinet.

Savings Bond Kickoff Thursday

Marshall's annual Federal U.S. Savings Bond Campaign Kickoff Ceremony is scheduled for Thursday at 1:30 p.m. in Morris Auditorium. John Henke, Area Manager for the U.S. Treasury Department in Birmingham, will be the featured speaker. The Jacksonville State University Show Choir is scheduled to sing.

Series EE savings bonds purchased on or after May 1 will earn 5.68 per cent interest (90 per cent of the average 5-year Treasury securities yields for the preceding six months) right from the start. Series EE bonds purchased after May 1, increase in value monthly, with the interest rate compounded semi-annually. However, bonds cashed before they are five years old will lose the last three months of interest.

More information on savings bonds will be provided at the Kickoff Ceremony and during the campaign scheduled for May 19 - 30.

Heat-Resistant Material Licensed For High-Performance Pistons

NASA has granted a California company the first license to use a tough, space-age material to make high-performance pistons for internal combustion engines. Other potential license applications could include oilless pistons for natural gas pumps; recreational vehicle engines for snowmobiles, motorcycles, hovercraft and jet-skis; and weight-critical applications like ultralight aircraft engines.

Hitco Technologies, Gardena, Calif., was granted exclusive rights to make, sell and use carbon-carbon pistons for high-performance automotive applications and co-exclusive rights for competition racing and small-to-large-bore diesel engines in the United States and certain foreign countries. The company intends to develop and manufacture the pistons at its factory in Gardena.

Carbon-carbon pistons offer significant weight savings and improved thermal performance over their aluminum and steel counterparts, as well as improving performance and reducing emissions.

NAIS Team Honored Nationally

The NASA Acquisition Internet Service (NAIS), the federal government's first Agencywide acquisition service on the Internet, was recognized recently by the Ford Foundation and Harvard University for its original work in getting NASA acquisition information to contractors.

The NAIS was chosen as a semifinalist in the Innovations In American Government Awards Program sponsored by Harvard and the Ford Foundation. Only 99 of the 1540 applicants were chosen as semi-finalists.

The NAIS team established the Agencywide service that

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Marshall Center to Participate in Health and Fitness Week

National Employee Health and Fitness Week, to be held May 19-23, includes the following planned Marshall Center activities:

May 20: "Open House" for the Marshall-NASA Exchange Fitness Center in Building 4752 from 11 a.m. to 1 p.m. The goal is to encourage employees to see what the program has to offer to them as well as their families. There also will be a badminton exhibition to promote the sport and revitalize the Badminton Club from 11:30 a.m. to 12:30 p.m. on the gym floor.

May 21: National Employee Health and Fitness Day Annual Walk led by Axel Roth at 11 a.m. at Building 4752. Outdoor aerobics from 4:50 p.m. to 6 p.m. under the pavilion in the picnic area.

May 22: 5K Fun Run/2-mile walk at 11 a.m. Starts at Building 4752 parking lot. Tug-O-War between NASA and Army at 5 p.m.

May 23: Rain date for Employee Health and Fitness Annual Walk.

For more information, contact Joyce Eagan at 4-3996.

NASA Acquisition Internet Team

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delivers NASA's acquisition documents to industry over the Internet while reducing paperwork and saving time and money. Companies get the electronic version of a solicitation immediately upon release, avoiding several days of document reproduction and mail time, according to Jim Bradford of Marshall's Procurement Office.

More information about NAIS is located at <http://procurement.nasa.gov>.

Team members representing Marshall include Jim Bradford, Rick Glover, Jane Maples, Jonathan Pettus, Mark McCutchen, Eddie Terry, Jim Roe, Gary Rhoney, Dwight Clark and Laura Allen.

Space Station Briefing to Air Thurs.

A briefing on the status of the International Space Station Program will be held at 7 a.m. CDT Thursday at Kennedy Space Center and televised live on NASA television. The briefing will follow a meeting of the International Space Station Control Board to consider a revised station assembly schedule.

OASTT Seeks New Logo Design

NASA's office of Aeronautics and Space Transportation Technology is holding a contest to design a new logo. Entries will be judged on content, design, size and image usability and reproduction. For more information, see the NASA web site, "<http://www.aero.hq.nasa.gov/oastthp/curevent/realwrlld.htm>", or call Humphrey Crockett at NASA Headquarters at (202) 358-2410.

STS-84 Mission

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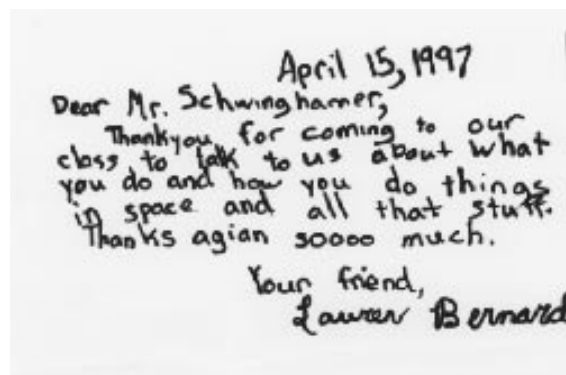
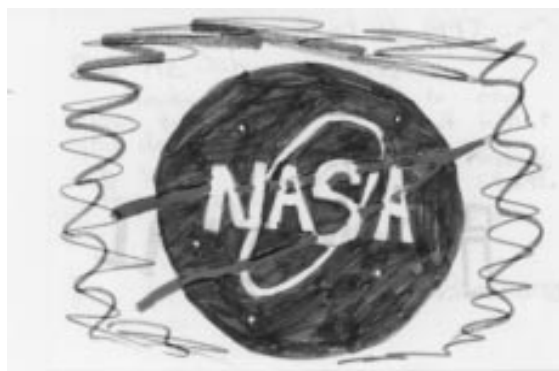
of California, Riverside is the principal investigator for the GND facility. Frozen protein samples will be transported to the Russian Mir space station in a GND, and the protein crystals on board Mir from the STS-81 mission will be returned to Earth for laboratory analysis.

The investigation is expected to contribute to the understanding of why proteins grow differently in the microgravity environment of space.

Featured in the Second-Generation Vapor Diffusion Apparatus (VDA-2) will be an experiment that will grow high-quality crystals of various proteins using the vapor diffusion method. In addition, the experiment is expected to foster protein crystal growth research. Investigators associated with this study are from several international universities and research institutes.

Production of high-quality crystals is critically important in drug design. Results of studies of enzyme crystal structures are used to design new drugs to treat chronic conditions and diseases.

Dr. Larry DeLucas at the Center for Macromolecular Crystallography, University of Alabama at Birmingham is the principal investigator. NASA's biotechnology research program is managed by the Microgravity Research Program at the Marshall Center.



Marshall Center Employees often speak to students across the country. This is one of 33 personally designed thank you notes recently received by Marshall Center Associate Director (Technical) Bob Schwinghamer for a speech that he gave to second graders attending St. Mary's Catholic School in Greenville, S.C.

Employee Ads

Miscellaneous

- ★ 1992 to present Prelude car cover, bra and moon roof, air deflector, make offer. 539-2951
- ★ Sheltie puppies. 757-5420
- ★ Country blue, cream and mauve sofa and loveseat \$250 for both. 306-0365
- ★ Golf clubs, lynx woods and irons, plus misc. with bag \$125. 882-6449
- ★ Hospital bed. 881-1981
- ★ Microwave oven has shelf meat probe \$35. 883-9107
- ★ Tomato cages made from concrete reinforcing wire six at \$3. 883-7926
- ★ Wolfe tanning bed paid \$2,200, will sale for \$1,500. 852-9131
- ★ 17" monitor P75 Processor 1.0 GB HD, 32 MG RAM, 4 x CD Rom, 32 bit sound card, 28.8 modem, windows 95/microsoft office 7.0 \$700. 830-0238
- ★ JVC stereo with tape deck and CD player \$250. 830-0238
- ★ 1984 model boat 19 foot Ebbtide bowrider, Chevrolet engine with trailer \$3,000. 205-586-3539
- ★ Ladies 10 speed Peugeot bike, not a mountain bike \$125. 539-0263
- ★ John Deere trimmer, \$50; weedeater blower, \$50; ultra Vu II diving goggles \$50. 205-773-4461
- ★ Venture 1080 pop-up camper w/icebox, stove \$400; 16' glassmate bass boat w/85HP Evinrude \$1,200. 883-9884
- ★ Amana microwave, 1500 watt \$40; Panasonic VCR, 4-head, stereo, needs new head \$40. 895-9520
- ★ Boxwoods - ave 2-3ft., \$15 each. 586-3061
- ★ Murray lawn tractor, 18hp., 42" cut, cultivator plow, sleeve hitch \$700. 776-3040

Vehicles

- ★ 1995 Nissan 200 SX-SE auto, A/C, P/S, P/B, PW, PDL, cruise tilt, 6K miles \$11,000. 883-9107
- ★ 1986 Honda Prelude, 5-speed, power, sunroof, cruise, tilt, wheel \$3,495. 882-1431
- ★ 1994 Dodge Grand Caravan, 1 owner, 84K, must sell \$8,000. 837-0085
- ★ 1987 Mercury Grand Marque \$1,200 o.b.o. 837-7382
- ★ 1991 Mazda RX-7 Coupe, security system, sunroof, alloys \$9,300. 881-0645
- ★ 1987 Ford Aerostar, 7 passenger, retail \$4,725, wholesale \$3,500, asking \$3,200. 536-3061

Vehicles

- ★ 1987 Reliant \$795. 880-2761
- ★ 1994 Honda Accord EX, black, sunroof, 91K miles \$13,800. 350-1011
- ★ 1988 Dodge Wagon, 4-cylinder, 2.5 liter, automatic, air, cruise, tilt, radio/cassette, 60K miles. 881-1227

Found

- ★ Eyeglasses in brown case, slightly flattened, found in street leading to 4203/4201. 881-0551

Center Announcements

- ✦ **MOO**—The Management Operations Office retirees will meet for breakfast/lunch on May 22 (4th Thursday each month) at the Cracker Barrel in Madison at 10 a.m. All present or former MOO employees are welcome. Call 539-0042 if you have any questions.
- ✦ **EAA**—The Huntsville Chapter of the Experimental Aircraft Association will hold its annual Fly-In on May 17 at 9 a.m. to 5 p.m. at the Moontown airport. It all begins with breakfast at 7:30 a.m. The Fly-In is free to the public, and there will be free plane flights for kids age 12 to 17 with parental permission. For more information call Paul Johnson at 539-2951 or pager at 219-4663.
- ✦ **Blue Cross Representative** —A Federal representative from blue cross/blue shield will be at Marshall on May 21, Bldg. 4202, Room B-108 from 9-11 a.m. to assist employees with questions and claim problems.
- ✦ **Toastmasters International**—Toastmasters International will have a lunch meeting each Tuesday from 11:30 a.m. to 12:30 p.m. in Building 4610 cafeteria conference room.
- ✦ **Blood Drive**—The American Red Cross will be at Bldg. 4752 on May 16 from 8 a.m. to 1:30 p.m. for the monthly Marshall Blood Drive visit. The following schedule should eliminate long waiting periods: A-B, 8 a.m.; C-E, 8:30 a.m.; F-H, 9 a.m.; I-L, 9:30 a.m.; M-P, 10 a.m.; Q-S, 10:30 a.m.; and T-Z, 11 a.m. Marshall employees who serve as blood donors without compensation will be authorized 4 hours of excused absence for this purpose. A longer period may be authorized only when required for recuperation. Contractor personnel must comply with the policy of their respective companies.
- ✦ **Auction of Government Surplus Property** —A local Sealed Bid Sale of government surplus property will be held May 23 at Bldg. 7415, Warehouse Rd., Redstone Arsenal. Inspection is May 20-22 from 8 a.m. to 3 p.m. Bids must

be submitted by 9 a.m. May 23. To view materials for sale or for further information call E. Russell at 955-0297 or D. Davis at 842-2570.

- ✦ **AGA**—The North Alabama Chapter of the Association of Government Accountants will hold its annual awards meeting on May 15 at the Marriott, 5 Tranquility Base. Mitch Laine will speak on the topic "Success in a Changing Environment." The social hour starts at 5:30 p.m. with dinner at 6:15 p.m. For reservations please contact Sandra Julian at 876-2373
- ✦ **Walk for Habitat**—Habitat for Humanity of Madison County plans a walk-a-thon fundraiser June 14. The walk-a-thon will start at the gazebo in Big Spring Park downtown Huntsville. Registration will begin at 8 a.m., walk at 9 a.m. Call Habitat for Humanity at 533-2282 for details.
- ✦ **Aerospace Symposium**—Marshall/Lockheed Martin will host the 31st Aerospace Mechanisms Symposium at the Huntsville Marriott on May 14-16. This symposium addresses problems of design fabrication, test, operational use of aerospace mechanisms, and a stimulating forum for technical interchange. To register or for more information call Pat Burrow, 544-7171 or Carl Foster, 544-7167.
- ✦ **Toastmasters**—Redstone Toastmasters International will meet every Tuesday at 6 p.m. in the Morrison's Cafeteria in Madison Square Mall. For more information call 461-0476.
- ✦ **Technology Transfer**—"Technology Transfer and Commercialization: NASA's Agenda for Change" will be held May 15 at 10 a.m. to 11 a.m., Bldg. 4200, Room P110. The course will provide an overview of the federal technology transfer and commercialization challenge and familiarize employees with NASA's response to it. Reservations are required. Contact: Susan Whitfield by e-mail or at 4-1933.

Job Opportunities

CPP 97-31-CV, AST, Structural Mechanics, GS-861-14, S&E, Structures & Dynamics Laboratory, Structural Analysis Division, Structural Assessments Branch. Closes May 15.

CPP 97-33-JB, Contract Specialist, GS-1102-5/7/9, Procurement Office, Research & Development Support Division. Closes May 22.

CPP 97-34-CV, Supervisory AST, Structural Mechanics, GS-861-15, S&E Structures and Dynamics Laboratory, Structural Design Division. Closes May 15.

Reassignment Bulletin 97-9-JB, AST Technical Management, GS-801-13, Space Shuttle Projects Office, Solid Rocket Booster Project Office, Business Management Office. Closes May 21.

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